



1930564 - R8 SEMS

EXN1-258

CORRESPONDANCE

SEMS
1930564

EXN1-258

Correspondance

BROHM MINING CORP.

RECEIVED

DEC 30 1987

EXPLORATION AND
MINING PROJECT

December 28, 1987

Tom Dirken
S.D. Dept. of Water & Natural Resources
Joe Foss Building
523 East Capitol Avenue
Pierre, South Dakota 57501

Dear Tom:

Enclosed is a map of the drill holes D87-61, 62, 63 and 64 that will be temporarily abandoned as described in my letter of December 16. Please call if you have further questions.

Sincerely,

Doug Stewart

Doug Stewart
Sulphide Project Mgr.

DS/dvl

enc:

South Dakota Office: P.O. Box 485, Deadwood, South Dakota 57732
Telephone: (605) 578-2107

Head Office: #1580 - 999 West Hastings Street, Vancouver, B.C. V6C 2W2
Telephone: (604) 662-8383 Telex: 04-51472 P V C VCR Telecopier: (604) 684-1329

December 21, 1987

Mr. Doug Stewart
Sulfide Project Manager
Brohm Mining Corp.
PO Box 485
Deadwood, SD 57732

Dear Mr. Stewart:

This correspondence is in response to your letter of December 16, 1987 requesting temporary abandonment of drill holes D87-61, 62, 63, and 64.

Mr. Robison of Minproc informed me on December 12, 1987 that the static water level in the holes was at 200 feet. The Department of Water and Natural Resources (DWNR) approves the method for temporarily plugging the four holes described in your letter. As per my letter to you dated December 17, 1987, please send DWNR a map showing the hole locations.

See you on January 4th.

Sincerely,

Thomas V. Durkin
Hydrologist
Exploration & Mining Program
Telephone: (605) 773-4201

BROHM MINING CORP.

December 16, 1987

RECEIVED
DEC 18 1987
EXPLORATION AND
MINING PROGRAM

Mr. Tom Durkin
Dept. of Water and Natural Resources
Exploration Mining Program
Joe Foss Building, Fourth Floor
Pierre, SD 57501

Dear Mr. Durkin:

As Mr. Wally Robison of Minproc recently discussed with you, Brohm Mining Corporation is in the process of drilling four core holes to 600 feet in depth each. The holes are numbered D87-61, 62, 63 and 64.

Brohm submitted on December 8, a Notice of Intent for drilling up to 200 holes to a maximum depth of 2000 feet. Once this Notice of Intent is approved, we will probably want to deepen one or all of the four holes currently being drilled to 600 feet.

This letter is to request your authorization to temporarily abandon drill hole numbers D87-61, 62, 63 and 64. Temporary abandonment will consist of regrading the immediate drill site and the leaving of 10 to 30 feet of four inch surface casing in the collar of each hole. The surface casing will be capped with a bolt-on steel cap. Final abandonment will be in accordance with ARSD 74:11:08.

We look forward to receiving your approval of this request as soon as possible.

Sincerely,


Doug Stewart
Project Manager

DS/jms

South Dakota Office: P.O. Box 485, Deadwood, South Dakota 57732
Telephone: (605) 578-2107

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Telephone: (604) 662-8383 Telex: 04-51472 P V C VCR Telecopier: (604) 684-1329

RECORD OF TELEPHONE CONVERSATION

DATE: 12/7/87 TELEPHONE NUMBER: _____

TELEPHONE CALL TO: Tom Durkin

TELEPHONE CALL FROM: Wally Robison (Minneapolis)

RE: Berkman's future EX-1-

STAFF SIGNATURE T.P.

NOTES: Mr. Robison called requesting info. on how to complete Berkman's EX-1 to deeper hole drilled under EX-1-258 ~~to~~ from 600 ft to 2,000 ft. I told him that I sent ^{EX-1} checklist to Barry Horson last week & for him to use it when completing application.

Mr. Robison informed me that several holes have been drilled to 600 ft & are now temporarily plugged ~~stopping~~ in the following manner:

core hole is cased ^{fully} above ground surface & capped. ~~that~~ static water level was at 2,00 feet. I approved the temp. plugging method.

He will submit application late this week. Several new wells will be proposed. I said that this ~~will~~ may require a pre-injection.

RECORD OF TELEPHONE CONVERSATION

DATE: 12/4/87

TELEPHONE NUMBER: (303) 721-9111

TELEPHONE CALL TO: Barry Hanson (Minproc.)

TELEPHONE CALL FROM: Tom Dunbar

RE: Brock's EXRT requirements.

STAFF SIGNATURE T.D.

NOTES: I returned the call for BT. Mr. Hanson is working on Brock's EXRT's now. He asked if it is necessary to submit a new appl. application to deepen the hole permitted under EXRT-258, & add 30 more in pit area. I told him what I told John Wilbur, & that is yes. I explained why (i.e., must ~~add~~ achieve hole depth, research aquifer penetration, apply additional restriction, etc.)

BT said it is not necessary to pre-impact the area if it is all within pit area.

I will send Mr. Hanson an EXRT-checklist & he can check for completeness. Send to:

Minproc (USA)

5600 S. Quebec St.

Englewood, CO 80111

attn: Barry Hanson

RECORD OF TELEPHONE CONVERSATION

DATE: 11/30/87. TELEPHONE NUMBER: 578-2107

TELEPHONE CALL TO: Tom Durkin

TELEPHONE CALL FROM: John Wilbanks

RE: Belt Edge & Brown EXRI's - 191, 233, & 258.

STAFF SIGNATURE T.S.

NOTES: John asked if Brown could conduct exploration not yet done under the above referenced permits (even though some are several years old). I said yes, as long as the work did not deviate from the ~~permitted work~~ ^{permitted work}. John said that the old permit application did not specify hole depth & could Brown therefore drill as deep as they want. I looked at the old permits, checked with BT, & told John that EXRI-191 specifically stated that hole would be drilled shallower than 1,000 feet & that this must be followed (EXRI-191 had closing form filed by NWRI but failed to find info. John said to disregard closing forms now.)

EXRI-233 (issued in Feb. 1986) was approved without prior knowledge of exact hole locations. ~~Several~~ ^{Several} thousand feet of access road were proposed & approved but exact hole locations were to be further defined following results of on-going sampling. I asked John to submit a map & hole depth info on these holes when Brown decide where they will be located. He agreed. A letter dated 10/17/85 to RA from Richard Hall of Tacoma stated that 15 holes would be drilled to ~~depth~~ ^{depth} about 400 feet. I told John that Brown would be responsible to work within these limits. Since Brown wishes to go deeper with these holes & with the 200 holes proposed to 600 feet under EXRI-258, I told John, as per previous discussions with Brown & BT, to submit a new EXRI application to cover this work. He will submit new EXRI next week.

RECORD OF TELEPHONE CONVERSATION

DATE: 8/4/87 TELEPHONE NUMBER: 642-8131

TELEPHONE CALL TO: Tom Durkin

TELEPHONE CALL FROM: John Wilbunke

RE: Brahm's hole plugging.

STAFF SIGNATURE Thomas W. Durbin.

NOTES: John called to inform DWR (as per restriction letter) that Brahm will begin hole plugging Thursday (August 6, 1987) & continue every other day until plugging is complete.

I told John that the task force will be touring Brahm's area on Thursday & suggested that Brahm show the task force how test holes are properly plugged to protect aquifer quality, etc.

John called back later & asked about a permit needed to install a diversion mechanism on Bear Butte creek to divert water for mine operation. He said Brahm has a permit from Water Rights to divert 112 gal/min from Bear Butte creek. I transferred him to Mike Cegals regarding plans & specs. for the diversion mechanism.

BROHM MINING CORP.

July 28, 1987

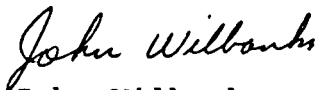
Mr. Nick Bugosh
Hydrologist
Dept. of Water and Natural Resources
Joe Foss Building
523 East Capitol Ave.
Pierre, SD 57501

Dear Mr. Bugosh:

Per our telephone conversation of last week, Brohm Mining Corporation will assume reclamation liability previously assigned to Lacana Gold/Gilt Edge Inc. under permit numbers EXNI 191 and 233. The current certificate of deposit for \$20,000.00 (Permit EXNI-258) is to be considered as reclamation bonding for these two permits also. Transfer forms will be completed and returned to you when the forms are received by Brohm.

If there are any questions, call me at 642-8131.

Sincerely,



John Wilbanks
Director - Gov/Environ Affairs

JW/dvl

South Dakota Office: P.O. Box 485, Deadwood, South Dakota 57732
Telephone: (605) 578-2107

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Telephone: (604) 662-8383 Telex: 04-51472 P V C VCR Telecopier: (604) 684-1329

RECORD OF TELEPHONE CONVERSATION

DATE: 7/24/87 TELEPHONE NUMBER: (605) 642-8131

TELEPHONE CALL TO: John Wilbanks

TELEPHONE CALL FROM: NB

RE: Letter stating assumption of liability

STAFF SIGNATURE Rich Burgosh

NOTES: Requested letter confirming Brohm's assumption of all liability for existing EXN's (EXN-191, 233).

- Confirmed that silt fence should be installed below beach pad prior to disturbance - He proposes hay bales upslope of silt fence to protect from rocks - I said this would be O.K. - the important thing is that mitigation measures meet functional criteria of design.

July 24, 1987

Mr. John Wilbanks
Director, Gilt Edge Mine
Brohm Mining Corporation
P.O. Box 485
Deadwood, SD 57732

Dear Mr. Wilbanks:

We are in receipt of the exploration Notice of Intent you filed with our office on July 23, 1987. As a result of our review of the proposed operation, we have determined that the following restrictions are required pertaining to water pollution control:

- 1) Test holes shall be capped, sealed, and plugged immediately following the drilling and probing. If any of the approximately 50 drill holes in the pit are to be temporarily kept open the hole shall be securely capped with a tapered concrete plug or suitable equivalent that is of sufficient diameter to prevent it from slipping below the surface. The hole shall be marked with a sturdy steel fence post with a minimum height of 42 inches above the ground surface (as per ARSD 74:11:08:08).
- 2) The operator shall notify the Department of Water and Natural Resources at least 48 hours prior to final hole abandonment so that a representative from the Department can witness the plugging procedure.
- 3) If surface casing is used in the exploration holes, the following requirements shall be met:
 - a) Prior to removal of the surface casing, the hole shall be plugged in accordance with ARSD 74:11:08 to a level just below the bottom of the surface casing.
 - b) Following step a), the casing will be removed (when possible) or cut off at least one foot below the ground surface.
 - c) The remainder of the hole will then be plugged in accordance with ARSD 74:11:08.

- 4) When drilling fluids are used they shall be sufficiently contained to prevent overland flow or discharge to any waters of the State.
- 5) This project shall be conducted and reclaimed in such a manner as to prevent any violation of the beneficial uses or specified water quality criteria of any water resources in the area. Note especially that Strawberry Creek is classified for beneficial use as:
 - (3) Coldwater marginal fish life propagation waters;
 - (8) Limited contact recreation waters;
 - (9) Wildlife propagation and stock watering waters;
 - (10) Irrigation waters;
- 6) A buffer of at least 30 feet will be maintained between drill hole sites and Strawberry Creek in order to minimize sedimentation into the creek.
- 7) If test hole drilling intercepts old subsurface mine workings, an alternative plugging procedure will be developed by Brohm Mining Corporation and submitted to the Department of Water and Natural Resources for approval prior to employment.
- 8) Exploration activities will avoid all archaeological resources. This includes mill or any other foundations.

In addition to these, the restrictions recommended by the Department of Game, Fish, and Parks, the Department of Education and Cultural Affairs, and the District Conservationist shall be followed.

Please note that we have assigned your Notice of Intent the following number which should be used for referencing the permit in the future: EXNI-258. Please be advised that this Notice of Intent allows you to conduct only that type and amount of work which is hereby being approved. Any additional work must be covered by the submission of a new Notice to our office.

Mr. John Wilbanks
July 24, 1987
Page 3

Thank you for your continued interest in and consideration
of the resources of South Dakota.

Respectfully,

Robert Townsend
Program Chief
Exploration and Mining Program
Telephone: (605) 773-4201

Enclosures: Copy of Notice of Intent; Receipt No. 037044

cc: Rex Outzen, Manager, Gilt Edge Inc.
Barry Parrish, SD Dept. of Game, Fish, and Parks
Jim Haug, Dept. of Education and Cultural Affairs

July 24, 1987

Lawrence County Commissioners
Lawrence County Courthouse
Deadwood, SD 57732

RE: Restriction Letters Pertaining to Notice of Intent

Dear Sir:

In accordance with SDCL 45-6C-15, the South Dakota Department of Water and Natural Resources (DWNr) hereby forwards copies of the following materials pertaining to the Notice of Intent filed by Brohm Mining Corporation.

- () Department of Game, Fish, and Parks' restrictions pertaining to wildlife matters
- (X) Department of Education and Cultural Affairs' restrictions pertaining to historic and archaeological matters
- (X) DWNr's restrictions pertaining to water rights or water pollution control

Based on materials sent in our correspondence of July 7, 1987 in addition to the ones forwarded today, all of the requirements pertaining to the notification of the County Commissioners have been met. If you have any questions relating to the filing of the Notice of Intent, please contact our office.

Respectfully,

Robert Townsend
Program Chief
Exploration and Mining Program
Telephone: (605) 773-4201

Enclosure: DECA Restrictions, DWNr Restrictions

AFFIDAVIT OF PUBLICATION

STATE OF SOUTH DAKOTA, { ss.
COUNTY OF LAWRENCE

Jimmie R. Stephenson, of said county and state, being
duly sworn, on his oath says: That the Lead Daily Call Deadwood Pioneer Times

is a legal newspaper of general circulation, printed and published in Lead,
in said county and state, by the Seaton Publishing Company, and has been
such a newspaper during the times hereinafter mentioned; and that I,

Jimmie R. Stephenson, the undersigned, am the
Business Manager of the said newspaper, in charge of the advertising
department thereof, and have personal knowledge of all the facts in this
affidavit, and that the advertisement headed NOTICE OF FILING

EXPLORATION NOTICE OF INTENT - Brohm Mining Corporation,

Gilt Edge Inc.

a printed copy of which is hereto attached, was printed in said newspaper
for one successive and consecutive day, the respective publi-

cations thereof being made on July 10th, 1987

and on _____, 19____

_____, 19____

_____, 19____

_____, 19____

_____, 19____

and the last publication thereof on July 10th, 1987

and that the full amount of fees charged for publishing the same, to-wit:
the sum of \$ 10.26, inures solely to the benefit of aforesaid

publisher and that no arrangement or understanding for a division thereof
has been made with any person other than the publisher, and that no part
thereof has been agreed to be paid to any other person whomsoever.

Subscribed and sworn to before me this 10th

day of July, 1987

Dina Kolb

Notary Public, Lawrence County, S. Dak.

My Commission

Expires April 2, 1995

My commission expires _____, 19____

RECEIVED

JUL 14 1987

EXPLORATION AND
MINING PROGRAM

NOTICE OF FILING
EXPLORATION NOTICE
OF INTENT
The following notice is hereby given that the
South Dakota Department of Water and Natural Resources has re-
ceived a Notice of Intent to conduct
gold exploration from Brohm Min-
ing Corporation, Gilt Edge Inc.,
P.O. Box 485, Deadwood, South
Dakota 57732. The resident agent
for the operator is C.T. Corpora-
tion, 319 South Coteau Street, Pie-
rre, South Dakota 57501.
The exploration project will be
conducted within the Gilt Edge
mine area which is generally lo-
cated approximately 4 miles sou-
theast of Lead within Sections 5-8,
T4N-R4E in Lawrence County.
Operations are anticipated to
begin in summer 1987. The explo-
ration will consist of drilling a max-
imum of 200 test and condemnation
holes by reverse circulation and
core drilling methods. Holes will
be drilled to 600 feet. Condemna-
tion drilling insures that facilities
are not constructed over high
grade ore deposits. Drill sites will
be accessed through existing
roads.
Persons desiring further infor-
mation may contact the South Da-
kota Department of Water and Nat-
ural Resources, Exploration and
Mining Program, Joe Foss Build-
ing, Fourth Floor, Pierre, South
Dakota 57501 (605) 773-4201.

40 JUL 10 1987

RECORD OF TELEPHONE CONVERSATION

DATE: 7/14/87 TELEPHONE NUMBER: 224-5825

TELEPHONE CALL TO: Gene Mayer (Brohm's Attorney)

TELEPHONE CALL FROM: Tom Durkin

RE: Brohm's bond

STAFF SIGNATURE T.D.

NOTES: Tom Durkin wanted to know how to go about changing name on bond. I told him to have a name change rider sent to us.

Later I found out bond is no good. Ideal Mutual Ins. Co. is no longer in existence (bankrupt).

Dofonne said not to permit EXNT + to put a hold on currently permitted EXNT work (work under Bill Edg's name).

* see phone memo of 7/14/87 to John Willbrooks.

RECORD OF TELEPHONE CONVERSATION

DATE: 7/14/87 TELEPHONE NUMBER: 642-8131

TELEPHONE CALL TO: John Wilbanks

TELEPHONE CALL FROM: Tom Durkin

RE: Silt Edge/Bedrock bond.

STAFF SIGNATURE T.D.

NOTES: I told John that DWR found out that the \$20,000 surety bond from Ideal Mutual Ins. Co. for Silt Edge is void. Ideal Mutual went bankrupt in '85. I said that I can't process exploration permit until we get another surety. I suggested a CD for \$20,000 to cover this project & the other 2 Silt Edge exploration permits.

John called back & asked why the Silt Edge mine ~~has~~ surety for >\$600,000 cannot be used. I told him that the mine surety only covers mine work & doesn't take into account exploration work. He agreed & relayed this info. to his superiors & agreed to send a CD for \$20,000 right away.

(I will hold restriction letters until we have CD.)

RECORD OF TELEPHONE CONVERSATION

DATE:

7/19/87

TELEPHONE NUMBER:

394-1936

TELEPHONE CALL TO:

Jim Haug (DECA)

TELEPHONE CALL FROM:

Tom Durkin

RE:

~~Broken~~ DECA's response to Broken.

STAFF SIGNATURE

Thomas V. Durkin

NOTES:

I told Jim that DWR did not yet receive DECA's response to regarding Broken's drilling. I told him that I had to send DWR restriction letter out soon (30 days almost up). I asked if he had any particular restrictions that I should include. Jim said that he didn't want ~~any~~ explosive activities to disturb any of the foundations (including mill foundation). I included this in DWR restriction #8.

July 7, 1987

Lawrence County Commissioners
Lawrence County Courthouse
Deadwood, SD 57732

RE: Pending Mineral Exploration Notice of Intent

Dear Sir:

In accordance with SDCL 45-6C-15, the South Dakota Department of Water and Natural Resources (DWNR) hereby forwards a copy of the Notice of Intent submitted by Brohm Mining Corp.

Enclosed please find the major documents pertaining to this filing. The following checked items, however, have not yet been received by our office; copies of these will be forwarded once we receive them:

- () Department of Game, Fish, and Parks' restrictions pertaining to wildlife matters
- (X) Department of Education and Cultural Affairs' restrictions pertaining to historic and archaeological matters
- (X) DWNR's restrictions pertaining to water rights and water pollution control

You should be receiving these additional materials within the next 30 days. Please note that we have not enclosed a copy of the map or the recommendations of the Conservation District. The map is considered confidential. If the recommendations of the Conservation District are desired, they can be requested from either our office or the County Conservation District. If you have any questions relating to the filing of this Notice of Intent, please contact our office.

Respectfully,

Robert Townsend
Program Chief
Exploration and Mining Program
Telephone: (605) 773-4201

Enclosures: Notice of Intent, Reclamation Plan, documents stated above

July 7, 1987

Lead Daily Call
P.O. Box 876
Lead, SD 57754

RE: BROHM MINING CORP.

Dear Editor:

Please publish the enclosed notice in your paper as "legal notice" for one issue on July 10, 1987. If for any reason you are unable to publish this notice on the date specified, please immediately notify the Exploration and Mining Program office at 773-4201.

After publication, submit a statement of billing for publishing the enclosed notice along with an affidavit of publication. Your statement should show a cost breakdown (cost per column inch). We request that you return the affidavit and statement of billing by July 17, 1987. Your billing should be sent to the following address:

Department of Water and Natural Resources
Fiscal Office
Joe Foss Building, Room 213
523 East Capitol
Pierre, SD 57501

Respectfully,

Robert Townsend
Program Chief
Exploration and Mining Program
Telephone: (605) 773-4201

Enclosure: Notice of Filing Exploration Notice of Intent

NOTICE OF FILING
EXPLORATION NOTICE OF INTENT

Notice is hereby given that the South Dakota Department of Water and Natural Resources has received a Notice of Intent to conduct gold exploration from Brohm Mining Corporation, Gilt Edge Inc., P.O. Box 485, Deadwood, South Dakota 57732. The resident agent for the operator is C.T. Corporation, 319 South Coteau Street, Pierre, South Dakota 57501.

The exploration project will be conducted within the Gilt Edge mine area which is generally located approximately 4 miles southeast of Lead within Sections 5-8, T4N-R4E in Lawrence County.

Operations are anticipated to begin in summer, 1987. The exploration will consist of drilling a maximum of 200 test and condemnation holes by reverse circulation and core drilling methods. Holes will be drilled to 600 feet. Condemnation drilling insures that facilities are not constructed over high grade ore deposits. Drill sites will be accessed through existing roads.

Persons desiring further information may contact the South Dakota Department of Water and Natural Resources, Exploration and Mining Program, Joe Foss Building, Fourth Floor, Pierre, South Dakota 57501 - (605) 773-4201.

BROHM MINING CORP.

RECEIVED

June 29, 1987

JUL 01 1987

EXPLORATION AND
MINING PROGRAM


Tom Durkin
Dept. of Water and Natural Resources
Exploration Mining Program
Joe Foss Building, Fourth Floor
Pierre, SD 57501

Dear Mr. Durkin:

To reaffirm our telephone conversation on June 29, 1987, we will be drilling no more than 200 holes pursuant our most recent Exploration Permit Application.

If there are any questions or you need additional information, please call me at (605) 642-8131.

Sincerely,



John Wilbanks
Director - Gov/Environ Affairs

SW,JW/dvl

South Dakota Office: P.O. Box 485, Deadwood, South Dakota 57732
Telephone: (605) 578-2107

Head Office: #1580 - 999 West Hastings Street, Vancouver, B.C. V6C 2W2
Telephone: (604) 662-8383 Telex: 04-51472 P V C VCR Telecopier: (604) 684-1329

BROHM MINING CORP.

June 15, 1987

RECEIVED

JUN 30 1987

Mr. Tom Durkin
Dept. of Water & Natural Resources
Joe Foss Building
523 East Capitol Avenue
Pierre, SD 57501

EXPLORATION AND
MINING PROGRAM

Dear Tom:

Per our conversation of June 23, 1987, Brohm will plug drill holes to protect groundwater. Brohm will also plug all drill holes in areas where surface disturbances will not occur during mining. Drill holes in the pit, that will be mined later, will be plugged to insure safety. Any drill holes in the pit (about 50) encountering groundwater will be plugged to prevent contamination of the groundwater. These commitments are in addition to those in Brohm's application of June 11, 1987.

A copy of the application is being provided to the Department of Game, Fish and Parks, District Conservationist and the Department of Education and Cultural Affairs for their review. These drill areas were included in the approved mine plan and should not require additional clearance by the three agencies.

If there are any questions or you need additional information, please contact me at 642-8131 in Spearfish.

Sincerely,



John Wilbanks
Director - Gov/Environ Affairs

JW/dvl

South Dakota Office: P.O. Box 485, Deadwood, South Dakota 57732
Telephone: (605) 578-2107

Head Office: #1580 - 999 West Hastings Street, Vancouver, B.C. V6C 2W2
Telephone: (604) 662-8383 Telex: 04-51472 P V C VCR Telecopier: (604) 684-1329

BROHM MINING CORP.

June 29, 1987

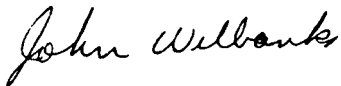
Tom Durkin
Dept. of Water and Natural Resources
Exploration Mining Program
Joe Foss Building, Fourth Floor
Pierre, SD 57501

Dear Mr. Durkin:

To reaffirm our telephone conversation on June 29, 1987, we will be drilling 600 foot deep holes in our Exploration Program.

If there are any questions or you need additional information, please call me at (605) 642-8131.

Sincerely,



John Wilbanks
Director - Gov/Environ Affairs

JW/dvl

South Dakota Office: P.O. Box 485, Deadwood, South Dakota 57732
Telephone: (605) 578-2107

Head Office: #1580 - 999 West Hastings Street, Vancouver, B.C. V6C 2W2
Telephone: (604) 662-8383 Telex: 04-51472 P V C VCR Telecopier: (604) 684-1329

RECORD OF TELEPHONE CONVERSATION

DATE: 6/29/87 TELEPHONE NUMBER: 642-8131

TELEPHONE CALL TO: John Wilbanks

TELEPHONE CALL FROM: Tom Durkin

RE: Brahm's Exat

STAFF SIGNATURE Thomas V. Durkin

NOTES: Scheduled pre-inspection for 7/1/87

Told John I need letter stating how many holes are
to be drilled. He said 200. (Wait for letter before advertising). Also
said I need to know how deep holes will be.

RECORD OF TELEPHONE CONVERSATION

DATE: 6/14/87. TELEPHONE NUMBER: 642-8131
~~642-2182~~
 TELEPHONE CALL TO: John Wilbanks ~~Scott~~ (Brohm Mining Corp. - Gilt Edge Inc.)

TELEPHONE CALL FROM: Tom Durkin

RE: EXXI deficiencies.

STAFF SIGNATURE Thomas V. Durkin

NOTES: I told John that the Sec. of State has CT Corp. registered as the resident agent for Brohm. The NOI states that Mr. Rex Outzen is the res. agent. John will have Mr. Outzen registered w/ Sec. of St. soon.
Timber removal access routes (referred to in NOI) are pre-existing or are routes previously permitted under the mine permit for Gilt Edge.
I told him DURK needs a letter addressed to BME (as per SDCL 45-6C-28) requesting that the hole referred to on the NOI ~~was~~ in the pit area ~~and~~ be left temporarily plugged plugged as per ARSD 74:11:08:08.

John didn't think contacting GFLP, SCS, + DECA was necessary since they already approved the mining operation. I told him that anytime an EXXI comes in, those agencies must be contacted. I offered to contact them but John said he would do it.

I told him I would send back the reclamation plan - he forgot to sign & date it.

BROHM MINING CORP.
GILT EDGE INC.
June 11, 1987

RECEIVED

JUN 15 1987

EXPLORATION AND
MINING PROGRAM

Mr. Robert Townsend
Department of Water and Natural Resources
Exploration Mining Program
Joe Foss Building, Fourth Floor
Pierre, SD 57501

RE: 1987 Notice of Intent to Conduct Mineral Exploration

Dear Mr. Townsend:

We are planning to drill exploration holes on the Gilt Edge property to determine mineralization in those areas which are to be disturbed as a part of the mine development for the Gilt Edge Mine. All drill holes will be on private property owned or controlled by BROHM. No drilling or other surface disturbing activity will occur on any Forest Service lands.

All drill areas will be reclaimed and plugged except areas where mining development is planned in the near future. Protection of ground water is an important consideration and may necessitate plugging of some holes in the pit area regardless of later mining.

Drill areas on the rest of the site will be reclaimed to temporary standards and will be reclaimed to final standards at the end of the project with the rest of the mine site.

The attached forms give details of what is planned. If there are any questions or you need additional information, please call me at (605) 642-8131.

Sincerely,



John Wilbanks
Director - Environmental & Governmental Affairs

Attachments:

Notice of Intent to Conduct Mineral Exploration
Operations, Check.

FINAL RECLAMATION PLAN

JW/dvl

EXN1 - 258

NOTICE OF INTENT

SEMS
1930564

EXN1-258

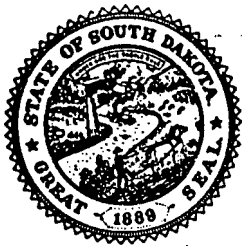
NOI

CHECKLIST FOR EXPLORATION NOTICE OF INTENT EXN-258

1. Operator Name: Brotm Mining Corp.
45-6C-7(1)
2. Operator Address: Gilt Edge Inc. 7/8/2/1/0
P.O. Box 485 Deadwood, S.D. 57732
45-6C-7(2)
3. Phone Number: 578-2107
45-6C-7(3)
4. Resident Agent: Mr. Rex Outzen Manager Gilt Edge Inc. CT Corp.
45-6C-7(3) Sec. of State has CT Corp. registered as res. agent. 319 Coteau St.
Perre, S.D. 57501
5. Resident Agent's Address: ~~P.O. Box 485~~
~~Deadwood S.D. 57732~~
6. Resident Agent's Phone Number: _____
7. Confirmation with Secretary of State: Date: 6/26/87 By: T.D.
8. Authorization Letter for Permit Agent Received: _____
9. Type of Exploration: 200 Conformation drill holes by res. circulation or core drill.
45-6C-7(5) No new roads. All drilling confined to Gilt Edge mine site. (Conformation
holes insure that facilities are not constructed over high grade deposits).
10. Minerals to be Explored: Gold + precious metals
45-6C-7(5)
11. Legal Description of Permit Area: W $\frac{1}{2}$ 5, SE $\frac{1}{4}$ 6, NE $\frac{1}{4}$ 7, NW $\frac{1}{4}$ 8,
45-6C-7(6) T 4N, R 4E.
12. Affected County(ies): Lawrence
45-6C-7(6)
13. Complete Notice Form Received (Date): 6/15/87
45-6C-6(1) and 45-6C-7
14. Complete Reclamation Plan Form Received (Date): 6/15/87
45-6C-6(2) and 45-6C-8

15. Topographic Map Showing Water Sources and Hole Locations Received (Date): 6/15/87
45-6C-6(3) and 45-6C-9
-
16. \$250 Fee Received (Date): 6/15/87
45-6C-6(4) and 45-6C-17
17. Surety Bond Received (Date/Amount/Bond No./Bonding Company/Is Permit to be Covered Under Another Bond):
45-6C-19 and 45-6C-20
\$20,000/# DC25-000206/Ideal Mutual Ins. Co. (Covered under EXVI-19)
18. Pre-Inspection of Permit Area (Date/Inspector): 7/1/87 T.D., JD
45-6C-19
19. Alternative Written Landowner Preferences (Date):
45-6C-16
20. Copy of Approved USFS Operating Plan (Date): N/A (See Brooks letter of 6/11/87)
Summary: _____
-
21. GF&P Notification (Date): _____ Response (Date): 7/2/87
45-6C-10 45-6C-10
GF&P Restrictions: Minimize red. into Strawberry Creek. Mine permit restrictions apply.
45-6C-10
-
22. DECA Notification (Date): _____ Response (Date): 7/13/87
45-6C-11 45-6C-11
DECA Restrictions: _____
45-6C-11
-
23. Conservation District(s) Notification (Date): _____ Response (Date): _____
45-6C-8 45-6C-8
Summary: _____
45-6C-8
-
24. DWR Hydro Memo: 7/1/87
25. DWR Restrictions: _____
45-6C-12

26. Newspaper Used for Advertisement: Lead Daily Call
45-6C-15
Date Sent: 7/7/87 Date Published: 7/14/87 Affidavit Received: _____
45-6C-15 45-6C-15 45-6C-15
27. Copy of Ad to Fred Steece: 7/7/87
28. Filing of EXNI and Restrictions with County Commissioners:
45-6C-15
Initial Letter: 7/7/87
45-6C-15
Final Letter: 7/14/87
45-6C-15
29. DWNR Restriction Letter Sent to Operator (Date): 7/24/87
45-6C-12
30. Copy of DWNR Restriction Letter to Crew (Date): 7/24/87
31. Copy of DWNR Restriction Letter to ^{Rex Outzen}~~Permit Agent~~ (Date): 7/24/87
32. Copy of DWNR Restriction Letter to US Forest Service (Date): _____
33. Field File Made (Date): 6/17/87



Department of Water and Natural Resources
Exploration and Mining Program
Joe Foss Building, Fourth Floor
Pierre, South Dakota 57501
Telephone: 605/773-4201

NOTICE OF INTENT TO CONDUCT
MINERAL EXPLORATION OPERATION
(Excluding Uranium)

Pursuant to SDCL 45-6C:
Relating to the Regulation of
Mineral Exploration

RECEIVED
JUN 15 1987
EXPLORATION AND
MINING PROGRAM

Name of Operator and Address of Operator's
Principle Place of Business:

Brohm Mining Corporation
Gilt Edge Inc.
P.O. Box 485
Deadwood, SD 57732

Telephone Number:
(605) 578-2107

Name and Address of Operator's Resident Agent
in South Dakota for Service of Process:

Mr. Rex Outzen, Manager C.T. CORP
Gilt Edge Inc.
P.O. Box 485
Deadwood, SD 57732
319 COTEAU ST.
PIERRE S.D.
57501

Telephone Number: (605) 578-2107
(JCU) 605-224-5826

Brief Description of the Type of Exploration to be Conducted (include a list of all minerals
to be explored and a description of methods):

Drill holes on 200 foot centers for condemnation and to further identify ore.
Condemnation drilling insures that facilities are not constructed over high
grade deposits. ~~Drill exploration holes will delineate ore deposits.~~ Exploration
is for precious metals (Gold). Methods include reverse circulation and possibly
core drilling. Sites will be accessed by existing roads and timber removal
access routes. All drilling is confined to the mine site!

Will the Operator Conduct Uranium Explora-
tion? () Yes (X) No

If Yes, a Permit Pursuant to SDCL 45-6D
Must be Obtained.

Date Exploration Will Commence:
As Soon As Possible

Legal Description of Land to be Explored by
Section, Township, and Range:

T4N, R4E SDM
W $\frac{1}{2}$ of Sec. 5
SE $\frac{1}{4}$ of Sec. 6
NE $\frac{1}{4}$ of Sec. 7
NW $\frac{1}{4}$ of Sec. 8

County(s) Affected:

Lawrence

What Legal Authority Does the Operator Have to Conduct Exploration on the Above-Described Land?

(X) Deed (X) Lease () US Forest Service Permit () Other

Attach Copy (Numerous Documents) Furnished Upon Request.

INSTRUCTIONS (Reference SDCL 45-6C):

This Notice of Intent Must be Accompanied by:

1. A Plan of Reclamation Pursuant to Section 8.
2. A Topographic Map Pursuant to Section 9.
3. A Fee of \$250.00 Pursuant to Section 17.
4. A Surety Bond in an Amount to be Determined by the Department Pursuant to Section 19.
5. Any Written Landowner Consultations Giving Alternative Preferences for the Reclamation of the Affected Land Pursuant to Section 16.

Applicant hereby affirms that the mineral exploration will be conducted pursuant and subject to the provisions of SDCL 45-6C, and all regulations promulgated thereunder, that he will grant access to the Board of Minerals and Environment or its agents to the area under notice from the date of the notice and thereafter for such a time to assure compliance with the provisions of SDCL 45-6C.

Signature:

John Wilbanks

Title: Director-Gov/Environ. Affairs

Date: 6-10-87

STATE OF South Dakota

COUNTY OF Lawrence

On this 11th day of June, 19 87, before me personally appeared

John Wilbanks

who acknowledged himself to be the Dir/Gov/Environ Affairs (Title)

for Brohm Mining Corporation (Operator) and that he is authorized to execute this Notice for the purposes contained therein.

Carol Langenfeld Athow
Notary Public

SEAL

My Commission Expires: CAROL LANGENFELD ATHOW, Notary Public
My Commission Expires March 7, 1991

FOR DEPARTMENT USE ONLY

Date Approved:

July 24, 1987

Bond Amount:

DC25-000206
\$20,000

File Number:

EXNI-191

Exploration Notice of Intent, EXNI-258, is covered under CD #3407, NORWEST BANK SOUTH DAKOTA, N.A., Deadwood, in the amount of \$20,000. EXNI-258 covers the following:

W $\frac{1}{2}$ Section 5; SE $\frac{1}{4}$ Section 6; NE $\frac{1}{4}$ Section 7; NW $\frac{1}{4}$ Section 8; T4N-R4E
Lawrence County

Exploration Notice of Intent, EXNI-258, is covered under Bond No. DC25-000206, IDEAL MUTUAL INSURANCE COMPANY, in the amount of \$20,000, provided for EXNI-191. EXNI-258 covers the following:

W $\frac{1}{2}$ Section 5; SE $\frac{1}{4}$ Section 6; NE $\frac{1}{4}$ Section 7; NW $\frac{1}{4}$ Section 8; T4N-R4E
Lawrence County

*Bond is
Cancelled
Company
Bankrupt*



Department of Water and Natural Resources
Exploration and Mining Program
Joe Foss Building, Fourth Floor
Pierre, South Dakota 57501
Telephone: 605/773-4201

NOTICE OF INTENT TO CONDUCT
MINERAL EXPLORATION OPERATION
(Excluding Uranium)

JUN 15 1987

EXPLORATION AND
MINING PROGRAM

Pursuant to SDCL 45-6C:
Relating to the Regulation of
Mineral Exploration

Name of Operator and Address of Operator's
Principle Place of Business:

Brohm Mining Corporation
Gilt Edge Inc.
P.O. Box 485
Deadwood, SD 57732

Telephone Number:
(605) 578-2107

Name and Address of Operator's Resident Agent
in South Dakota for Service of Process:

Mr. Rex Outzen, Manager C.T. CORP
Gilt Edge Inc.
P.O. Box 485
Deadwood, SD 57732
319 COTEAU ST.
PIERRE S.D.

Telephone Number: (605) 578-2107
Jew 57501
605-224-5826

Brief Description of the Type of Exploration to be Conducted (include a list of all minerals
to be explored and a description of methods):

Drill holes on 200 foot centers for condemnation and to further identify ore.
Condemnation drilling insures that facilities are not constructed over high
grade deposits. Ore exploration holes will delineate ore deposits. Exploration
is for precious metals (Gold). Methods include reverse circulation and possibly
core drilling. Sites will be accessed by existing roads and timber removal
access routes. All drilling is confined to the mine site!

Will the Operator Conduct Uranium Explora-
tion? () Yes (X) No

If Yes, a Permit Pursuant to SDCL 45-6D
Must be Obtained.

Date Exploration Will Commence:
As Soon As Possible

Legal Description of Land to be Explored by
Section, Township, and Range:

T4N, R4E SDM
W $\frac{1}{2}$ of Sec. 5
SE $\frac{1}{4}$ of Sec. 6
NE $\frac{1}{4}$ of Sec. 7
NW $\frac{1}{4}$ of Sec. 8

County(s) Affected:

Lawrence

What Legal Authority Does the Operator Have to Conduct Exploration on the Above-Described Land?

(X) Deed (X) Lease () US Forest Service Permit () Other

Attach Copy (Numerous Documents) Furnished Upon Request.

INSTRUCTIONS (Reference SDCL 45-6C):

This Notice of Intent Must be Accompanied by:

1. A Plan of Reclamation Pursuant to Section 8.
2. A Topographic Map Pursuant to Section 9.
3. A Fee of \$250.00 Pursuant to Section 17.
4. A Surety Bond in an Amount to be Determined by the Department Pursuant to Section 19.
5. Any Written Landowner Consultations Giving Alternative Preferences for the Reclamation of the Affected Land Pursuant to Section 16.

Applicant hereby affirms that the mineral exploration will be conducted pursuant and subject to the provisions of SDCL 45-6C, and all regulations promulgated thereunder, that he will grant access to the Board of Minerals and Environment or its agents to the area under notice from the date of the notice and thereafter for such a time to assure compliance with the provisions of SDCL 45-6C.

Signature: John Wilbanks
 Title: Director-Gov/Environ. Affairs Date: 6-10-87

STATE OF South Dakota
 COUNTY OF Lawrence

On this 11th day of June, 1987, before me personally appeared John Wilbanks who acknowledged himself to be the Dir/Gov/Environ Affairs (Title) for Brohm Mining Corporation (Operator) and that he is authorized to execute this Notice for the purposes contained therein.

Carol Langsted Arrow
 Notary Public

SEAL

My Commission Expires: CAROL LANGSTED ARROW, Notary Public
My Commission Expires March 7, 1991

FOR DEPARTMENT USE ONLY

Date Approved:

July 24, 1987

Bond Amount:

DC25-000206
 \$20,000

File Number:

EXNI-191

EXNI-258

SEMS
1930564

EXNI-258

Rec. Plan / Review

Did not copy

Comprehensive Rec. Plan by

Larry Brown 8/13/86

FYI

See St. Joe permit
app. & submitted data
for local aquifer
quality information.

NB

See Gilt Edge permit
app. in file in Sheldon's
office for info on wells.

~~TD, NR, DR~~

FYI - the tailing along
strawberry creek will be used
to build leach pad base - any
remaining ore to be reclaimed in
place as per the requirements
of mine permit # 459.

File when done.

BT

June 30, 1987

MEMO TO: Bob Townsend, Program Chief

FROM: John Dadoly, Intern

SUBJECT: Brohm Mining Corp. EXN1 ²⁵⁸ JD

INTRODUCTION

Brohm Mining Corporation is proposing an exploration program which involves drill holes on 200 foot centers for condemnation and to further identify ore. The exploration is for precious metals (gold) and involves T4N, R4E, sections 5,6,7,8 (Figure 1.). This area has been previously permitted as a mine site (permit #439). Site will be accessed by existing roads and timber removal access routes.

GEOLOGY

The proposed area of exploration is underlain by Tertiary (Eocene and Paleocene) intrusives, ranging in composition between trachyte and rhyolite, which have intruded Precambrian metasediments and metavolcanics, and the overlying Cambrian and Ordovician sediments. A portion of the area is overlain by Oligocene sediments of the White River Group (Figure 2).

PreCambrian Rocks:

These Early Proterozoic units are metasediments and metavolcanics of the Ellison, Flag Rock, and Grizzly Formations along with unnamed age-equivalent strata.

Paleozoic Rocks:

Deadwood Formation (Cambrian):

The Deadwood Formation is composed of: massive sandstone, greenish gray conglitic shale, dolomite and flat pebble limestone conglomerate, and sandstone with conglomerate locally at the base. It is 10-400 feet thick.

Winnipeg Formation (Ordovician):

The Winnipeg Formation is composed of green shale with siltstone, and ranges between 0 and 100 feet thick.

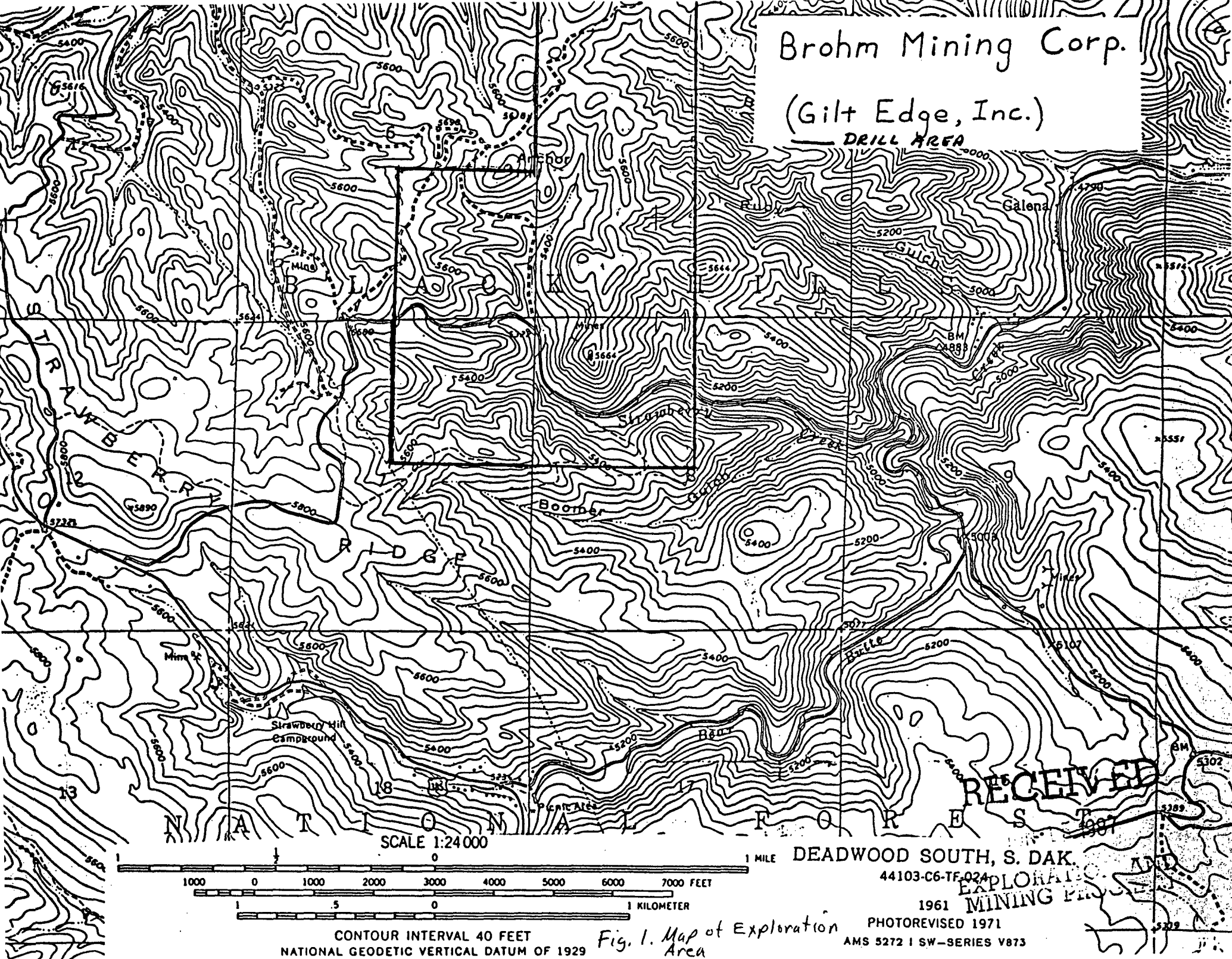
Whitewood Formation (Ordovician):

The Whitewood Formation is a light-colored limestone unit which is locally dolomitic, and ranges between 0 and 60 feet thick.

Brohm Mining Corp.

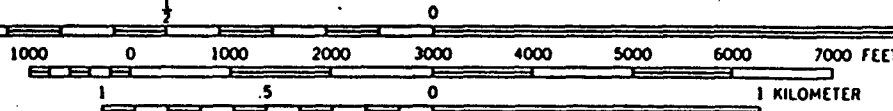
(Gilt Edge, Inc.)

DRILL AREA



NATIONAL GEOGRAPHIC

SCALE 1:24,000



CONTOUR INTERVAL 40 FEET
NATIONAL GEODETTIC VERTICAL DATUM OF 1929

Fig. 1. Map of Exploration Area

DEADWOOD SOUTH, S. DAK.

44103-C6-TF-024
EXPLORATION
MINING PROJECT

PHOTOREVISED 1971
AMS 5272 I SW-SERIES V873

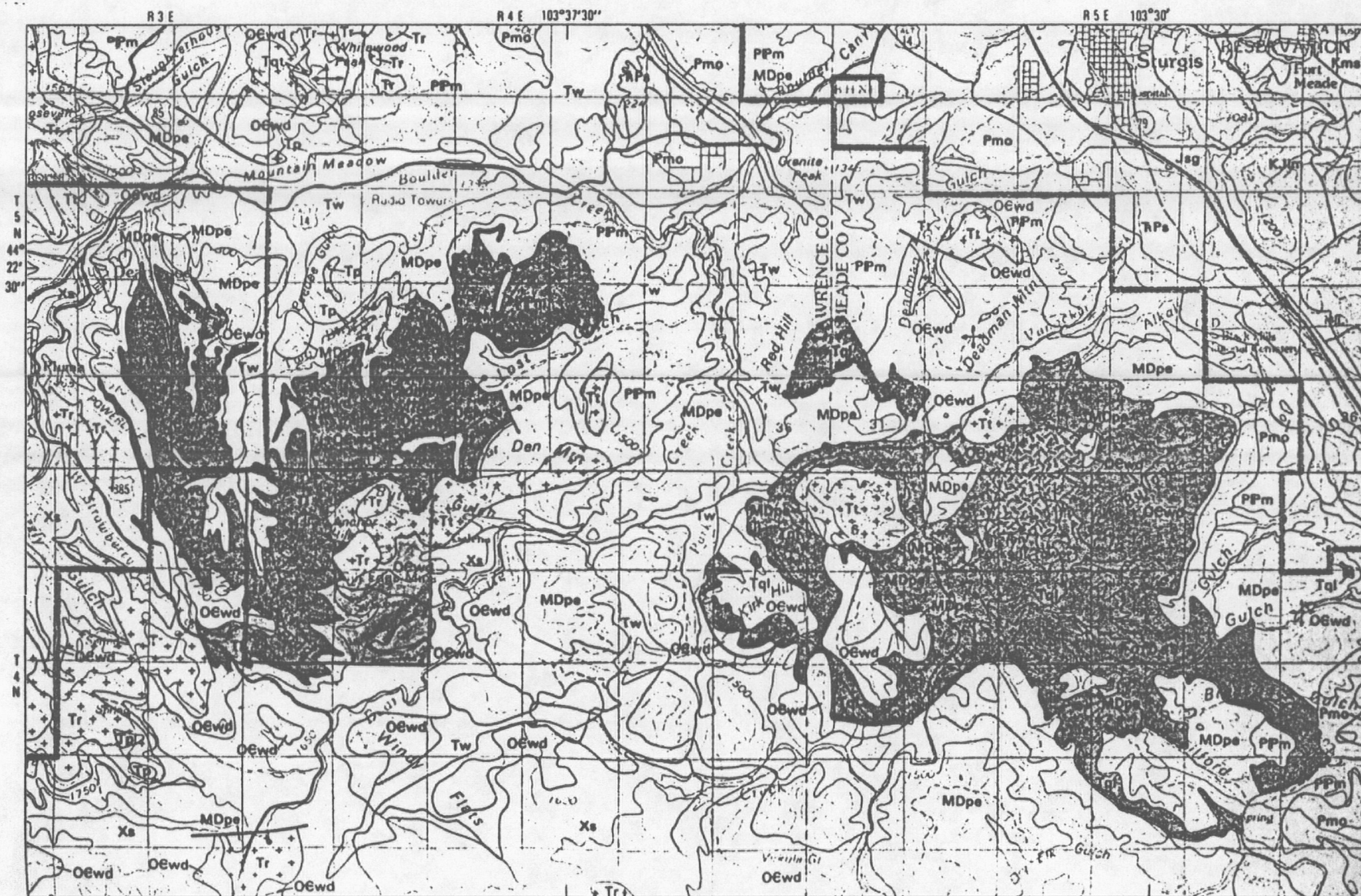


Figure 2. Geology of Exploration Area (DeWitt, et al, 1986)

EXPLANATION






















	White River Group (Oligocene)—Tuffaceous claystone and clay containing minor limestone lenses		Spearfish Formation (Triassic and Permian)—Shale, siltstone, and gypsum
	Phonolite (Eocene and Paleocene)—Sills, laccoliths, and dikes of analcime-rich phonolite		Minnekahta Limestone and Opeche Shale (Lower Permian)—Minnekahta Limestone: slabby limestone. Opeche Shale: sandy shale
	Rhyolite (Eocene and Paleocene)—Dikes, plugs, sills, and laccoliths of quartz-rich rhyolite		Minnelusa Formation (Lower Permian and Pennsylvanian)—Sandstone, solution breccia (anhydrite in subsurface), limestone, and shale
	Quartz trachyte (Eocene and Paleocene)—Sills, laccoliths, and dikes of quartz trachyte		Pahasapa Limestone (Lower Mississippian) and Englewood Formation (Lower Mississippian and Upper Devonian)—Pahasapa Limestone: cavernous dolomitic limestone. Englewood Formation: dolomitic limestone
	Quartz latite(?) (Eocene and Paleocene)—Sills and laccoliths of hornblende quartz latite(?) and biotite quartz latite(?). Pattern indicates area containing hydrothermally altered material. Large body in eastern part of map area is Vanocker laccolith		Whitewood Dolomite (Upper Ordovician), Winnipeg Formation (Middle Ordovician), and Deadwood Formation (Lower Ordovician and Upper Cambrian)—Whitewood Dolomite: dolomite. Winnipeg Formation: shale and siltstone. Deadwood Formation: sandstone, shale, and limestone
	Latite (Eocene and Paleocene)—Sills of hornblende latite		Metasedimentary and metavolcanic rocks (Early Proterozoic)—Undivided Ellison Formation, Flag Rock Formation, Grizzly Formation, and unnamed age-equivalent strata
	Trachyte(?) (Eocene and Paleocene)—Sills, dikes, and plugs of trachyte and trachyte porphyry		
	Mowry Shale, Newcastle Sandstone, and Skull Creek Shale (Lower Cretaceous)—Mowry Shale: siliceous shale containing thin bentonite layers. Newcastle Sandstone: sandstone and siltstone containing beds of bentonite and lignite. Skull Creek Shale: black shale		
	Inyan Kara Group (Lower Cretaceous) and Morrison Formation (Upper Jurassic) Inyan Kara Group—Fall River Sandstone: sandstone and minor siltstone. Lakota Formation: claystone and sandstone containing locally interbedded limestone and lignite lenses Morrison Formation—Siliceous claystone and shale		Boundary of proposed exploration area
	Sundance Formation (Upper and Middle Jurassic) and Gypsum Spring Formation (Middle Jurassic)—Sundance Formation: glauconitic sandstone and shale. Gypsum Spring Formation: massive gypsum and minor claystone		Contact—Dashed where approximately located
			Fault—Bar and ball on downthrown side
			Syncline—Axis dotted where concealed
			Dome

Figure 13. Geologic map of the Galena area, Black Hills National Forest, S. Dak. Geology from Darton and Paige (1925), Beck (1976), Matthews (1979), Anna (1973), Rockey (1974), Gasser (1981), G. M. French (unpub. mapping, 1984), Mukherjee (1968), Boyd (1975), Bayley (1972a), and Lisenbee (1985). Base from U.S. Geological Survey, Rapid City, 1977.

Cenozoic Rocks:

White River Group (Oligocene):

The White River Group is composed of light-colored clays with sandstone channel fillings and local limestone lenses. Thickness ranges between 0 and 800 feet.

Old Mine Sites:

The proposed ^Earea of exploration is located in the Galena Mining District. ~~extensive~~ old mine workings exist throughout the area. According to Shapiro and Gries (1970), six gold mines were ^Toperated in the four sections covered under this EXN. They are: Anchor Mountain, Gilt Edge, Golden Crest, Hoodoo-Union Hill Group, Oro Fino, and Rattlesnake Jack.

Due to the presence of numerous shafts, gloryholes, adits and drifts in this area, the likelihood of intersecting underground workings during drilling is high. Specific hole-plugging procedures for this event ^{possibly} should be specified by the operator.

SURFACE WATER:

One classified stream and three unclassified streams drain the area to be affected by this proposed exploration program. The classified stream is Strawberry Creek, and the unclassified streams are: Butcher Gulch Creek, Ruby Gulch Creek, and Boomer Gulch Creek.

Strawberry Creek:

Strawberry Creek is classified for beneficial uses from its confluence with Bear Butte Creek to S5, T4N-R4E as:

- (3) Coldwater marginal fish life propagation waters;
- (8) Limited contact recreation waters;
- (9) Wildlife propagation and stock watering waters; and
- (10) Irrigation waters.

During the period of June 1984 to October 1985 Gilt Edge Inc. conducted water quality monitoring in the area of proposed exploration. Sites one and two were located on Strawberry Creek (Figure 3). Water quality at site 1 on upper Strawberry Creek was good. The pH was between 6.9 and 7.2, TDS was very low or below the limit of detection. The water quality at site 2 was dramatically lower than that of site 1. Total dissolved solids were measured at 394 mg/l, pH at 3.10, and arsenic at 0.28 mg/l (DWSC limit 0.05 mg/l). Other heavy metal concentrations including antimony, copper, lead, zinc, and mercury were also elevated over upstream levels (see appendix).

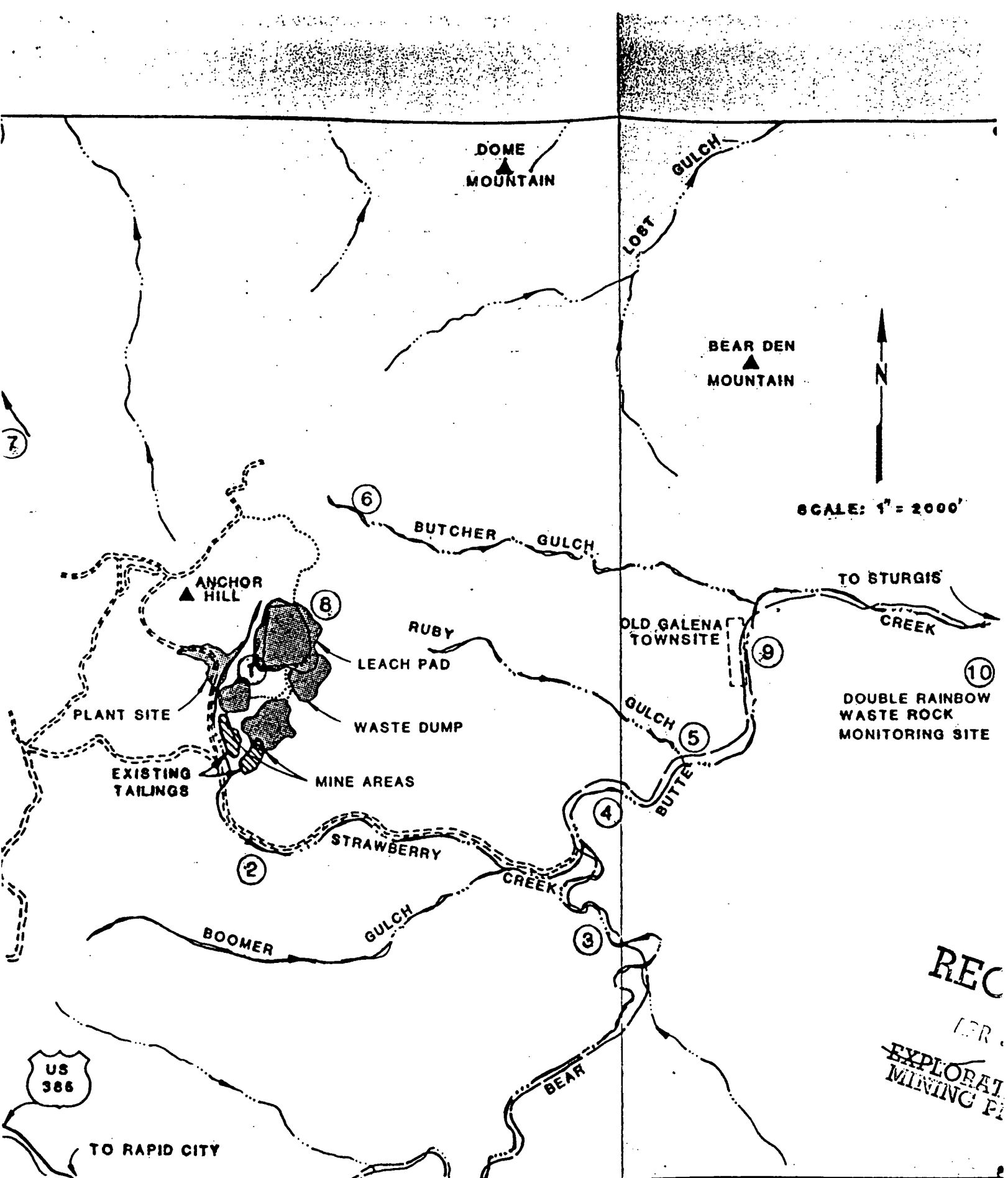


Figure 3. Surface Water Monitoring Stations
 ⑩ - station locations

INITIAL WATER QUAL
 MONITORING SITES
 GILT EDGE MINE PROJE
 FIGURE 1

The decrease in water quality between sites 1 and 2 is most likely due to the presence of old mine tailings located along a 1000 foot reach of Strawberry Creek just upstream of site 2. According to the Gilt Edge Project Surface Water Quality Monitoring Program report on file at DWNr, the tailings are being eroded directly into Strawberry Creek. The possibility of a cleanup of these tailings by Gilt Edge Inc. should be examined by DWNr.

Strawberry Creek drains an area of approximately 3 mi², and is approximately 2 mi long, no discharge data was located.

Butcher Gulch Creek:

Butcher Gulch Creek is an unclassified tributary² of Bear Butte Creek which drains an area of approximately 1 mi², and is approximately 1.5 mi long.

During the period of June 1984 to October 1985 Gilt Edge Inc. monitored the water quality of Butcher Gulch Creek at its headwaters (Figure 3, Site 6). Water quality was generally good, with the exception of pH which had a low 5.0 and a mean value of 5.24. Arsenic and cyanide were not detected. value of

No discharge data was located for Butcher Gulch Creek.

Ruby Gulch Creek:

Ruby Gulch Creek is an unclassified tributary of Bear Butte Creek which drains an area of approximately 1 mi², and is approximately 1 mi long.

Gilt Edge Inc. ^{ver} also monitored the water quality of this stream between June 1984 and October 1985 (Figure 3, site 5). Water quality was good, the mean pH was 7.2, arsenic was very low (high of 0.003 mg/l), and cyanide was not detected.

No discharge data for Ruby Gulch Creek was detected.

Boomer Gulch Creek:

Boomer Gulch Creek is a tributary of² Strawberry Creek which drains an area of approximately 1 mi² and is approximately 1.5 mi long. No discharge or water quality data was located.

GROUNDWATER (Meyer, 1984)

Aquifers in the proposed area of exploration are Quaternary Alluvium, Red River, Deadwood, and PreCambrian.

Alluvial Aquifers:

In general, alluvial aquifers which overlie the PreCambrian central core of the Black Hills are composed of coarse gravels and have excellent water quality. Major sources of contamination occur in the form of mine tailings which have become part of the alluvial sediments, as in the lower reaches of Whitewood Creek.

Red River Aquifer (Whitewood Formation):

The Red River Aquifer is overlain by the Englewood Limestone and is underlain by the Winnipeg and Deadwood Formations. It is deeply buried beneath other sediments except in the vicinity of the Black Hills. The limited data available for the Red River aquifer indicate that it is highly mineralized and probably unsuitable for most purposes. It may have fairly good water quality in the immediate vicinity of the Black Hills, but no data are available to support this theory.

Deadwood Aquifer:

The Deadwood Formation is overlain by the Winnipeg and Whitewood Formations and underlain by Precambrian rocks. In the vicinity of the Black Hills, the Deadwood aquifer may have adequate water quality for domestic use, however, data is very limited.

PreCambrian Aquifer:

The Precambrian aquifer includes igneous and metamorphic rocks which compose the basement upon which the sedimentary rocks lie. The Tertiary igneous rocks which occur in the northern Black Hills are also grouped in the Precambrian aquifer.

The water quality of the Precambrian aquifer is generally excellent, but yields are fairly low. This aquifer is very vulnerable to contamination, especially where soils are thin or lacking.

Water Wells:

A total of seven water wells within one-half mile of the proposed exploration area are on file at DWNR. Gilt Edge Inc. possibly has a few more wells in the area, but the file could not be located.

The wells are of two main types; shallow, large diameter wells in Quaternary Alluvium, and deeper (up to 285 feet), smaller diameter wells drilled in the Deadwood and Precambrian aquifers. Well drillers reports are in the Appendix.

— Attached
well log shows
14 gpm

RECOMMENDATIONS:

1. Brohm Mining Corporation (Gilt Edge, Inc.) should use special care when drilling near or through the old mine tailings along Strawberry Creek. Erosion of these tailings should be minimized, and all holes adequately plugged.
2. Alternate plugging procedures for holes penetrating old mine workings should be submitted to DWNR for approval.
3. DWNR should examine the possibility of having Gilt Edge, Inc. remove the tailings along Strawberry Creek for reprocessing.

REFERENCES

- Meyer, M., 1984, Evaluation of the Groundwater Resources of Western South Dakota, Task 5: Water Quality Suitability by Aquifer for Drinking, Irrigation, Livestock Watering and Industrial Use, South Dakota DWNR.
- Shapiro, L.H., and Gries, J.P., 1970, Ore Deposits in Rocks of Paleozoic and Tertiary Age of the Northern Black Hills, South Dakota, U.S.G.S. Open File Report, 235 p.

d62906jd.sm

APPENDIX

Mail to: Water Rights Div.
DWNR, Foss Bldg.
Pierre, SD 57501
(605) 778-3352

No. 1308-1 Hydrologic Unit 10120202
Map No. 1308-1 Basin BF
Newspaper DAILY CAUSE FOR 876, LEAD SD 57754

Application For Permit To Appropriate Water Within The State Of South Dakota

Check use of water: Industrial ☒ Commercial ☐ Municipal ☐ Other Common Distribution System ☐
Rural Water System ☐ Suburban Housing ☐ Geothermal Heat ☐ Institutional ☐ Recreational ☐
Domestic ☐ (above 18gpm) Other ☐

Type of Application: Check one or more of the following

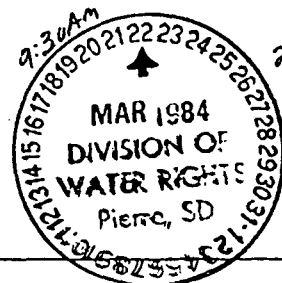
New ☒ Vested Right ☐ Future Use ☐ Change Use ☐

☐ Amend Permit No. _____ with old priority date retained

Change diversion point(s) ☐ Add diversion point(s) ☐ Other ☐ _____

☐ Application to: Change diversion point(s) ☐ Add diversion point(s) ☐ on Permit No. _____

☐ Construction to use water reserved by Future Use Permit No. _____



- Name of Applicant Daniel A. Fredlund Phone No. 348-3763
Post Office Address Sub. Rt. Box 307-1, Rapid City State SD 57702
(Street, RR or Box) Zip Code
- Amount of water claimed (c.f.s) 0.10 cfs
(Alluvium & basal conglomerate of Deadwood formation)
- Source of water supply surface and ground water, Lot 8 & Lot 12, Sec 5, T4N, R4E
- Location of point of diversion (A) 2320'N, 30'W; (B) 1860'N, 150'E; (C) 1450'N, 80'W;
(D) 1930'N, 530'E; (E) 1750'N; (F) 900'N, 150'W; all from quarter
corner Section 5 - Section 8, T4N, R4E, BHM. County Lawrence
- Counties where water will be used Lawrence
- Annual period during which water is to be used Year-long, but mostly during summer.
- Give a brief description of proposed project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed)
Shallow 24" Dia. wells (A), (B), & (C) dug & cased in alluvium to bed-rock are proposed for near surface water development for mine operations.
Storage dam (D) in Ruby Gulch is proposed to retain operations water, act as a settling pond, and be used for recirculation of water.
Proposed:
Deep 6" Dia. wells (E) & (F) drilled & cased in Deadwood formation.

Attachments: Attach Form 2A if diversion from a well or dugout, or if storage of water, is proposed. Attach map (see instruction)

STATE OF SOUTH DAKOTA)
County of Pennington)^{ss}

I, DANIEL A. FREDLUND the applicant, certify that I have read the foregoing application, have examined the attached map and that the matters therein stated are true and that I intend, and am able to complete the necessary construction.

Signed Daniel A. Fredlund

Subscribed and sworn to before me this 21 day of March 1984

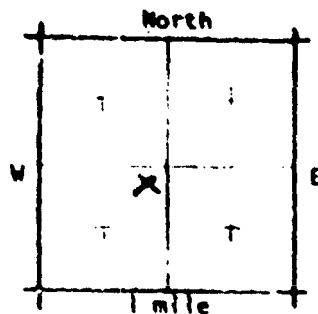
Harvey

Location NE 1/4 Sec 7 Twp 4N Rg 4E

County

Lawrence

Please mark well location with an "X"

Well Completion Date June 27-84

PROPOSED USE:

☒ Domestic ☐ Municipal ☐ Test Holes
☐ Irrigation ☐ Industrial ☐ Stock

Method of Drilling:

Rotary

WELL CONSTRUCTION:

Diameter of hole 6 inches Depth 28.5 feetCasing: ☐ Steel ☒ Plastic ☐ Other

Specify _____

Pipe Weight Diameter From To
_____ lb/ft 6 inches 0 feet 20 feet

_____ lb/ft _____ inches _____ feet _____ feet

Was a well screen used? ☐ Yes ☐ No

If Not Specify _____

Screen Type _____ Slot Size _____

Length _____ Diameter _____

Was Casing left open end? ☒ Yes ☐ NoWas a Packer or seal used? ☐ Yes ☒ No

If so what material? _____

Was well gravel packed? ☐ Yes ☒ NoWas well grouted? ☒ Yes ☐ NoDescribe grouting procedure Area aroundCasing failedTo what depth? 20 FeetWhat was grouting material? CementIf cement, how many sacks? 2Location of packer(s) and screen or perforated pipe 20 ftWAS WELL PLUGGED OR ABANDONED ☐ Yes ☒ No

If so how and with what material? _____

WNR-836 4/82

Well Owner:

Name

Jerry FloodAddress P.O. Box 112 Deadwood

Well Log:

Depth

Formation

From

To

<u>Top soil & Blk Rock</u>	<u>0</u>	<u>9</u>
<u>Hard Deadwood</u>	<u>9</u>	<u>20</u>
<u>Deadwood red Hard</u>	<u>20</u>	<u>150</u>
<u>" seal Hard sandstone</u>	<u>150</u>	<u>180</u>
<u>" " "</u>	<u>180</u>	<u>250</u>
<u>Hard red Rock & Sand</u>	<u>250</u>	<u>(285)</u>

STATIC WATER LEVEL 200 Feet

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other

If other; specify _____

Can well be completely _____

WELL TEST DATA:

☐ Pumped☐ Bailed

Describe: _____

☐ Other

Pumping Level Below Land Surface

_____ ft. After _____ Hrs. pumped _____ GPM

_____ ft. After _____ Hrs. pumped _____ GPM

_____ ft. After _____ Hrs. pumped _____ GPM

Remarks:

no pump in air test
14 gpi Per min
This well was drilled under license 121

and this report is true and accurate

Thomson Drilling Co. Inc.
 Drilling Firm Signed by _____

July 1/84
 Date

8-884

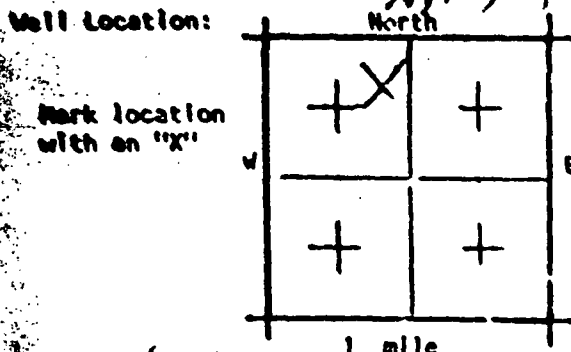
WELL DRILLERS REPORT

SOUTH DAKOTA WATER RIGHTS COMMISSION

4-78

Well Owner:
Name Jim Q. Aschmuck

Address Lead, S.D.
Box 2, Apt 2



County LAWR.
T. 7 S. 4N R. 4E

Proposed Use:
☒ Domestic ☐ Municipal ☐ Test Holes
☐ Irrigation ☐ Industrial ☐ Stock

Method of Drilling:
☒ Forward Rotary ☐ Bored ☐ Jetted
☐ Reverse Rotary ☐ Cable ☐ Other
6" Diamond Drill

Well Construction:
Diameter of Hole 6"
Depth 145'
Casing ☐ Steel ☐ Concrete
☒ Plastic ☐ Other
If other, specify 20' of 6"-160

Was casing end left open yes
Was a well screen installed no
Describe Well Screen
Diameter — Material —
Slot size —
Was well gravel packed no
Was well grouted yes
Was water sample taken —

Remarks:

Well produces $1\frac{1}{2}$ g.p.m. min.
+ 180± gallon storage.
I recommend setting pump at
135' - $\frac{1}{2}$ H.P. submersible - 5 gallon per min.

Water Level Information:
Static water level 23' below land surface
If flowing: closed in pressure — PSI
rate of flow — GPM

Controlled by:
☐ Valve ☐ Reducers ☐ Other
If other; specify —

Well Test Data:

☒ Pumped 1 1/2 hr Describe: 1 1/2 g.p.m.
☐ Bailed
☐ Other

Pumping Level Below Land Surface
ft. After — Hrs. pumped — GPM
" " " " " "
" " " " " "

Well Log:

Formation	Depth	
	From	To
DRIFT	0	5
BRICKY, yellowish	5	35
BROWN clay, white	35	36
1 1/2 g.p.m.		
BRICKY, yellowish	36	58
BRICKY, yellowish	58	60
gray green sh.	60	62
BRICKY, yellowish	62	64
gray green sh.	64	72
BRICKY, yellowish	72	77
gray green sh.	77	80
BRICKY, yellowish	80	130
BRICKY, yellowish	130	132
gray green sh.	132	145

Date Completed: Aug 9 1979

Driller: Alexander Drilling 324
Driller's or Firm's Name License —

Box 615 - Hill City SD
Address

Roy Alexander 8-18-79
Signed By Date

TABLE 4

Surface Water Quality Monitoring Results
 Site 1 - Upper Strawberry Creek
 (Continued)

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 MINING PROGRAM

Parameter

Baseline Data
 1984-1985

Alkalinity	
(MDL=0.1 mg/l-CaCO ₃)	
(FCWC = 20 mg/l unless naturally less)	
No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	14.0
Minimum Value	14
Maximum Value	14

Aluminum	
(MDL=0.1 mg/l)	
No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	0.90
Minimum Value	0.9
Maximum Value	0.9

Antimony	
(MDL=0.1 mg/l)	
No. of Samples	2
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Arsenic	
(MDL=0.001 mg/l)	
(FCWC = 0.05 mg/l)	
No. of Samples	2
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Bicarbonate	
No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	17.0
Minimum Value	17
Maximum Value	17

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Cadmium
(MDL=0.0005 mg/l)
(FCWC = .0004 to .0012 depending on hard.)
No. of Samples
No. Det. by Inst.
Arith. Mean
Minimum Value
Maximum Value

1
0
ND
ND
ND

Calcium
(MDL=0.05 mg/l)

No. of Samples
No. Det. by Inst.
Arith. Mean
Minimum Value
Maximum Value

1
1
6.000
6.00
6.00

Chloride

(SCWC = 100.0 mg/l)

No. of Samples
No. Det. by Inst.
Arith. Mean
Minimum Value
Maximum Value

1
1
1.0
1
1

Chromium

(MDL=0.005 mg/l)
(FCWC = 0.1 mg/l)

No. of Samples
No. Det. by Inst.
Arith. Mean
Minimum Value
Maximum Value

1
0
ND
ND
ND

Copper

(MDL=0.005 mg/l)

No. of Samples
No. Det. by Inst.
Arith. Mean
Minimum Value
Maximum Value

2
1
0.0107
ND
0.019

TABLE 4 (cont.)

Surface Water Quality Monitoring Results
 Site 1 - Upper Strawberry Creek
 (Continued)

RECEIVED
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 MINING PROGRAM

Baseline Data
 1984-1985

Parameter

Cyanide, Free

(MDL=0.005 mg/l)

(SCWC = 0.005 mg/l)

No. of Samples	2
No. Det. by Inst.	1
Arith. Mean	0.0037
Minimum Value	ND
Maximum Value	0.005

Cyanide, Total

(MDL=0.01 mg/l)

(SCWC = 0.02 mg/l)

No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Cyanide, Weak Acid Dis.

No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Electroconductivity

(MDL=0.2 umho/cm)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	110.0
Minimum Value	110.0
Maximum Value	110.0

Gold

(MDL=0.005 mg/l)

No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

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Hardness
(MDL=0.2 mg/l)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	27.0
Minimum Value	27.0
Maximum Value	27.0

Iron
(MDL=0.05 mg/l)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	0.240
Minimum Value	0.23
Maximum Value	0.25

Lead
(MDL=0.005 mg/l)

No. of Samples	2
No. Det. by Inst.	1
Arith. Mean	0.0047
Minimum Value	ND
Maximum Value	0.007

Magnesium
(MDL=0.01 mg/l)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	3.000
Minimum Value	3.00
Maximum Value	3.00

Manganese
(MDL=0.01 mg/l)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	0.040
Minimum Value	0.04
Maximum Value	0.04

TABLE 4 (cont.)
Surface Water Quality Monitoring Results
Site 1 - Upper Strawberry Creek
(Continued)

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MINING

Parameter	Baseline Data 1984-1985
-----------	----------------------------

Mercury	
(MDL=0.0002 mg/l)	
(FCWC = 0.00005 mg/l)	
No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	0.00115
Minimum Value	0.0010
Maximum Value	0.0013

Nickel	
(MDL=0.01 mg/l)	
No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	0.005
Minimum Value	0.00
Maximum Value	0.00

Nitrate	
(MDL=0.1 mg/l-N)	
No. of Samples	2
No. Det. by Inst.	1
Arith. Mean	0.12
Minimum Value	ND
Maximum Value	0.2

Nitrite	
(MDL=0.01 mg/l-N)	
(FCWC = 0.06 mg/l)	
No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Nitrogen, Ammonia	
(MDL=0.03 mg/l-N)	
(SCWC = 0.02 mg/l un-ionized)	
No. of Samples	2
No. Det. by Inst.	1
Arith. Mean	0.097
Minimum Value	ND
Maximum Value	0.18

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Nitrogen, Total Kjeldahl
(MDL=0.01 mg/l-N)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	1.130
Minimum Value	0.43
Maximum Value	1.83

pH
(MDL=0.01 pH)
(SCWC = 6.6 to 8.6)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	7.04
Minimum Value	6.9
Maximum Value	7.2

6.9
7.2
7.05
57.41

Phosphate, Total
(MDL=0.01 mg/l)
(FCWC = 0.00005 mg/l)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	0.115
Minimum Value	0.03
Maximum Value	0.20

Potassium

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	1.00
Minimum Value	1.0
Maximum Value	1.0

Selenium

No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

TABLE 4 (cont.)
Surface Water Quality Monitoring Results
Site 1 - Upper Strawberry Creek
(Continued)

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EXPLOSION AND
MINING PROGRAM

Baseline Data
1984-1985

Parameter

Silver

(MDL=0.0005 mg/l)

No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Sodium

(MDL=0.01 mg/l)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	3.200
Minimum Value	3.20
Maximum Value	3.20

Sulfate

(MDL=1.0 mg/l)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	35.0
Minimum Value	28
Maximum Value	42

Total Dissolved Solids (TDS)

(MDL=1.0 mg/l)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	56.0
Minimum Value	56
Maximum Value	56

Total Solids

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	96.00
Minimum Value	96.0
Maximum Value	96.0

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Total Suspended Solids (TSS)

(MDL=1.0 mg/l)

(SCWC = 30 mg/l)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	28.0
Minimum Value	3
Maximum Value	53

Turbidity in NTU

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	26.00
Minimum Value	26.0
Maximum Value	26.0

Zinc

(MDL=0.005 mg/l)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	0.0690
Minimum Value	0.040
Maximum Value	0.098

TABLE 5
Surface Water Quality Monitoring Results
Site 2 - Lower Strawberry Creek
(Continued)

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MINING

Baseline Data
1984-1985

Parameter

Aluminum
(MDL=0.1 mg/l)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	12.00
Minimum Value	12.0
Maximum Value	12.0

Antimony
(MDL=0.1 mg/l)

No. of Samples	3
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Arsenic
(MDL=0.001 mg/l)
(FCWC = 0.05 mg/l)

No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	0.1150
Minimum Value	0.005
Maximum Value	0.280

Cadmium
(MDL=0.0005 mg/l)
(FCWC = .0004 to .0012 depending on hard.)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	0.00570
Minimum Value	0.0057
Maximum Value	0.0057

Calcium
(MDL=0.05 mg/l)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	28.000
Minimum Value	28.00
Maximum Value	28.00

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Chloride

(SCWC = 100.0 mg/l)
No. of Samples 1
No. Det. by Inst. 1
Arith. Mean 1.0
Minimum Value 1
Maximum Value 1

Chromium

(MDL=0.005 mg/l)
(FCWC = 0.1 mg/l)
No. of Samples 1
No. Det. by Inst. 1
Arith. Mean 0.0330
Minimum Value 0.033
Maximum Value 0.033

Copper

(MDL=0.005 mg/l)
No. of Samples 3
No. Det. by Inst. 3
Arith. Mean 3.3667
Minimum Value 1.200
Maximum Value 7.400

Cyanide, Free

(MDL=0.005 mg/l)
(SCWC = 0.005 mg/l)
No. of Samples 2
No. Det. by Inst. 0
Arith. Mean ND
Minimum Value ND
Maximum Value ND

Cyanide, Total

(MDL=0.01 mg/l)
(SCWC = 0.02 mg/l)
No. of Samples 2
No. Det. by Inst. 0
Arith. Mean ND
Minimum Value ND
Maximum Value ND

TABLE 5 (cont.)

Surface Water Quality Monitoring Results
 Site 2 - Lower Strawberry Creek
 (Continued)

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 MINING PROGRAM

Baseline Data
 1984-1985

Parameter

Cyanide, Weak Acid Dis.

No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Electroconductivity
 (MDL=0.2 umho/cm)

No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	1373.3
Minimum Value	740.0
Maximum Value	2600.0

Gold
 (MDL=0.005 mg/l)

No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Hardness
 (MDL=0.2 mg/l)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	295.5
Minimum Value	111.0
Maximum Value	480.0

Iron
 (MDL=0.05 mg/l)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	58.200
Minimum Value	9.40
Maximum Value	107.00

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Lead
(MDL=0.005 mg/l)

No. of Samples	3
No. Det. by Inst.	1
Arith. Mean	0.0033
Minimum Value	ND
Maximum Value	0.005

Magnesium
(MDL=0.01 mg/l)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	24.500
Minimum Value	10.00
Maximum Value	39.00

Manganese
(MDL=0.01 mg/l)

No. of Samples	2
No. Det. by Inst.	2
Arith. Mean	3.975
Minimum Value	1.65
Maximum Value	6.30

Mercury
(MDL=0.0002 mg/l)
(FCWC = 0.00005 mg/l)

No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	0.00100
Minimum Value	0.0002
Maximum Value	0.0017

Nickel
(MDL=0.01 mg/l)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	0.066
Minimum Value	0.07
Maximum Value	0.07

TABLE 5 (cont.)

Surface Water Quality Monitoring Results
 Site 2 - Lower Strawberry Creek
 (Continued)

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 MINING PROGRAM

Baseline Data
 1984-1985

Parameter

Nitrate	
(MDL=0.1 mg/l-N)	
No. of Samples	3
No. Det. by Inst.	2
Arith. Mean	2.09
Minimum Value	ND
Maximum Value	5.7

Nitrite	
(MDL=0.01 mg/l-N)	
(FCWC = 0.06 mg/l)	
No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	0.020
Minimum Value	0.02
Maximum Value	0.02

Nitrogen, Ammonia	
(MDL=0.03 mg/l-N)	
(SCWC = 0.02 mg/l un-ionized)	
No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	0.207
Minimum Value	0.10
Maximum Value	0.38

Nitrogen, Total Kjeldahl	
(MDL=0.01 mg/l-N)	
No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	0.820
Minimum Value	0.59
Maximum Value	0.98

pH	
(MDL=0.01 pH)	
(SCWC = 6.6 to 8.6)	
No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	3.10
Minimum Value	3.0
Maximum Value	3.3

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Phosphate, Total
(MDL=0.01 mg/l)
(FCWC = 0.00005 mg/l)

No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	0.107
Minimum Value	0.05
Maximum Value	0.20

Potassium

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	1.10
Minimum Value	1.1
Maximum Value	1.1

Selenium

No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Silver

(MDL=0.0005 mg/l)

No. of Samples	1
No. Det. by Inst.	0
Arith. Mean	ND
Minimum Value	ND
Maximum Value	ND

Sodium

(MDL=0.01 mg/l)

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	5.900
Minimum Value	5.90
Maximum Value	5.90

TABLE 5 (cont.)

Surface Water Quality Monitoring Results
 Site 2 - Lower Strawberry Creek
 (Continued)

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 MINING PROGRAM

Baseline Data
 1984-1985

Parameter

Sulfate	
(MDL=1.0 mg/l)	
No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	624.7
Minimum Value	241
Maximum Value	1350

Total Dissolved Solids (TDS)	
(MDL=1.0 mg/l)	
No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	394.0
Minimum Value	394
Maximum Value	394

Total Solids	
No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	478.00
Minimum Value	478.0
Maximum Value	478.0

Total Suspended Solids (TSS)	
(MDL=1.0 mg/l)	
(SCWC = 30 mg/l)	
No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	54.0
Minimum Value	8
Maximum Value	132

Turbidity in FTU	
(MDL=0.2 FTU)	
No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	99.00
Minimum Value	99.0
Maximum Value	99.0

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MINING

Turbidity in NTU

No. of Samples	1
No. Det. by Inst.	1
Arith. Mean	36.00
Minimum Value	36.0
Maximum Value	36.0

Zinc
(MDL=0.005 mg/l)

No. of Samples	3
No. Det. by Inst.	3
Arith. Mean	1.6400
Minimum Value	0.420
Maximum Value	3.800



Department of Water and Natural Resources EXPLORATION RECLAMATION PLAN
Exploration and Mining Program
Joe Foss Building, Fourth Floor
Pierre, South Dakota 57501
Telephone: 605/773-4201

RECEIVED
JUN 15 1987

EXPLORATION AND
MINING PROGRAM

Pursuant to SDCL 45-6C-8 and 45-6D-9

In preparing this Reclamation Plan, please address each item in detail, following SDCL 45-6C-8 and 45-6D-9. Also, refer to the reclamation standards outlined under SDCL 45-6C-27 through 45-6C-34, SDCL 45-6D-33 through 45-6D-39, and the state's hole plugging regulations as detailed under ARSD 74:11.

1.) Describe the type of reclamation the operator proposes to achieve in the reclamation of the affected land.

A. Temporary Reclamation Will

Stabalize and cover the affected area with near natural vegetation and restore each drill site and other affected land as nearly as possible to its original condition by: reclaiming drill sites and access roads where possible, removal of all foreign debris, backfilling all depressions, scattering drill cuttings, re-seeding all disturbed land, and filling and plugging all drill holes except those holes occurring on the pit areas.

B. Permanent Reclamation is shown in the following document:

Gilt Edge Project Comprehensive Reclamation Plan, August 13, 1986
prepared by Larry F. Brown for Brohm Resources, Inc. for submission to South Dakota Department of Water and Natural Resources.

- 2.) Provide a proposed timetable for seeding and replanting indicating when and how the reclamation plan will be implemented. Such timetable shall be developed after consulting with the County District Conservationist as to the nature of the soils and native vegetation in the area of the proposed operation. These recommendations shall be followed, if any are provided, and copies of all correspondence shall be provided to the Department.

The schedule will be developed through consultation with the Lawrence County Conservationist and consistent with the Approval Mining Plan. All recommendations of the District will be followed as provided and will be performed as soon after completion of the drilling program as possible, considering favorable planting conditions. Mixtures and distribution will be recommended by the District.

Areas not disturbed by mining will be seeded with the following mixture:

- (1) Western Wheatgrass (*Agropyron smithii*)
- (2) Little Bluestem (*Andropogen sloparious*)
- (3) Sideoats Grama (*Bouteloua curtispindula*)
- (4) Smooth Bromgrass (*Bromus inermis*)
- (5) Green Needlegrass (*Stipa viridula*)

3.) Describe how the reclamation plan will rehabilitate the affected land.

All new and improved drill hole access will be constructed in such a manner to cause minimum impact on the environment. Water berms will divert spring runoff. The project will maximize use of existing roads and topography to minimize surface disturbance. All new roads and drill sites will be reclaimed, closed to continued traffic, and re-seeded in accordance to recommendations by the District Conservationist. Re-seeding will be carried out upon completion of the project and as an on-going program. All re-seeding will also promptly control short term erosion. Refuse generated during exploration activities will be hauled off the site.

- 4.) Describe the anticipated temporary and permanent plugging and capping procedures to be used (refer to SDCL 45-6C-28 through 45-6C-30, SDCL 45-6D-33 through 45-6D-35, and the state's hole plugging regulations as detailed under ARSD 74:11).

All holes will be sealed pursuant to SDCL 45-6C-28 through 45-6C-30, SDCL 45-6D-33, and the state's hole plugging regulations as detailed under ARSD 74:11.

All drill holes will be sealed utilizing one of the following methods;

(a) If drilling is conducted using air, plugging shall be accomplished by filling with cuttings derived from the hole or a comparable free flowing aggregate and then capped with cement, followed by soil and re-seeding in accordance with ARSD 74:11:08:04 "Minimal Acceptable Plugging Method".

(b) If the drill hole intercepts substantial water, plugging shall be accomplished by filling with a sulfate resistant cement grout followed by a re-seeded soil cap in accordance to ARSD 74:11:08:07 "Plugging Artesian Wells".

It is anticipated that all drill holes will be permanently plugged during the program; however, in the event temporary plugging becomes necessary in order to re-enter a hole, a four foot length of steel pipe will be installed in the collar and marked clearly to indicate its presence.

- 5.) Provide the estimated cost of: a) implementing and completing the proposed reclamation and; b) the estimated cost of plugging and sealing each test hole.

Estimated Maximum Temporary Reclamation Costs - \$4000

(Based on a maximum surface disturbance of 5 acres with no mining disturbance later.)

Estimated hole plugging costs - \$3000

A \$20,000 bond has been posted with the State to cover this project and any additional exploration. (Also, refer to reclamation plan and bond for mine site.)

Operator Signature: _____

John Wilbanks

Title: _____

Director, Gov. + Env. Affairs

Date: _____

June 11, 1987

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GAME, FISH, AND PARKS

**South Dakota
Department of
Game, Fish and Parks**

3305 West South Street
Rapid City, SD 57702
(605) 394-2391

Division of Wildlife

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JUL 02 1987

**EXPLORATION AND
MINING PROGRAM**

July 1, 1987

Mr. Scott Wanstedt
Environmental Specialist
Brohm Mining Corp.
P.O. Box 485
Deadwood, SD 57732

Dear Scott

We have received your condemnation drilling proposal for the Gilt Edge Mine property. Based on extensive review of the area for the Gilt Edge mine permit application, we have the following comments.

1. Adequate erosion control methods shall be employed in road and pad construction to minimize sediment movement into Strawberry Creek.
2. The Department of Game, Fish and Parks restrictions developed for the mine permit shall also pertain to this exploration project.

If you have any further questions, please contact this office.

Sincerely

Barry Parrish
Wildlife/Mineral
Development Coordinator

BP:mg

c: Kirk
✓ Townsend

HISTORICAL SOCIETY
Arch Center

July 10, 1987

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**EXPLORATION AND
MINING PROGRAM**

SDCL 45-6C-11 Determination

Project: condemnation drilling, Brohm Mining

Location: Sections 5, 6, 7, 8 T4N, R4E
Lawrence County

Letter of June 25 regarding the proposed condemnation
mine. We have no objections to the drilling
recording and mapping of any historic sites in the
area, as is outlined in my letter to you dated
regarding cultural resource measures for your permit.

If you need or require further information, please let me

Sincerely,

James K. Haug
Assistant State Archaeologist

Exploration and Mining Program, DWR

EXWI-258

INSPECTION
Reports

OPERATOR: Brohm Mining Corporation
PROJECT: EXNI-258
INSPECTION DATE: 7/1/87
INSPECTORS: Thomas V. Durkin, Nick Bugosh, Hydrologists T.P.
John Dadoly, Intern
Mike Cepak, Natural Resource Engineer
OPERATOR PRESENT: Scott Wanstedt
CONDITIONS: Sunny, warm, dry.

On July 1, 1987 a preliminary inspection of Brohm Mining Corporation's proposed test and condemnation drilling project was conducted by John Dadoly, Scott Wanstedt of Brohm, and myself. 200 holes will be drilled to a depth of 600 feet using reverse circulation and core drilling methods to further delineate ore bodies and to insure that mine facilities will not be constructed over high grade deposits. All drilling will be confined to the Gilt Edge, Inc. mine site in Sections 5-8, T4N-R4E in Lawrence County.

According to Scott Wanstedt, the old mine tailings on the east side of Strawberry Creek have caused the pH to drop to 2.9 in the creek waters. These tailings will be removed from the area and used in the leak detection system for the heap leach pad. This will greatly increase the water quality of Strawberry and Bear Butte Creeks. The tailings are deeply dissected and have been eroding for years.

We looked closely at the proposed pad area where the majority of the condemnation holes are planned. I informed Scott that a 30 foot buffer must be maintained between drill hole sites and Strawberry Creek in order to minimize sedimentation into the creek.

The roads within the mine area are very well constructed and are not causing any sedimentation or erosion problems. The project looked very clean and well planned.

Nick Bugosh and Mike Cepak met us in the field to investigate the rumor, brought up at a town meeting in Rapid City, that Gilt Edge had begun construction of a heap leach pad in an unpermitted area. The inspection indicated that the only construction currently being conducted by Gilt Edge was the upgrading of a currently existing road. The construction was in response to county road requirements.

EXNI-258
INSPECTION REPORTS

SEMS
1930564

EXWI-258

INSPECTION
Reports

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PROJECT: EXNI-258
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~~XXXXXXXXXX~~
EXNI-258
MAPS

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EXNIE - 258

MAPS

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EXPLORATION AND
MINING

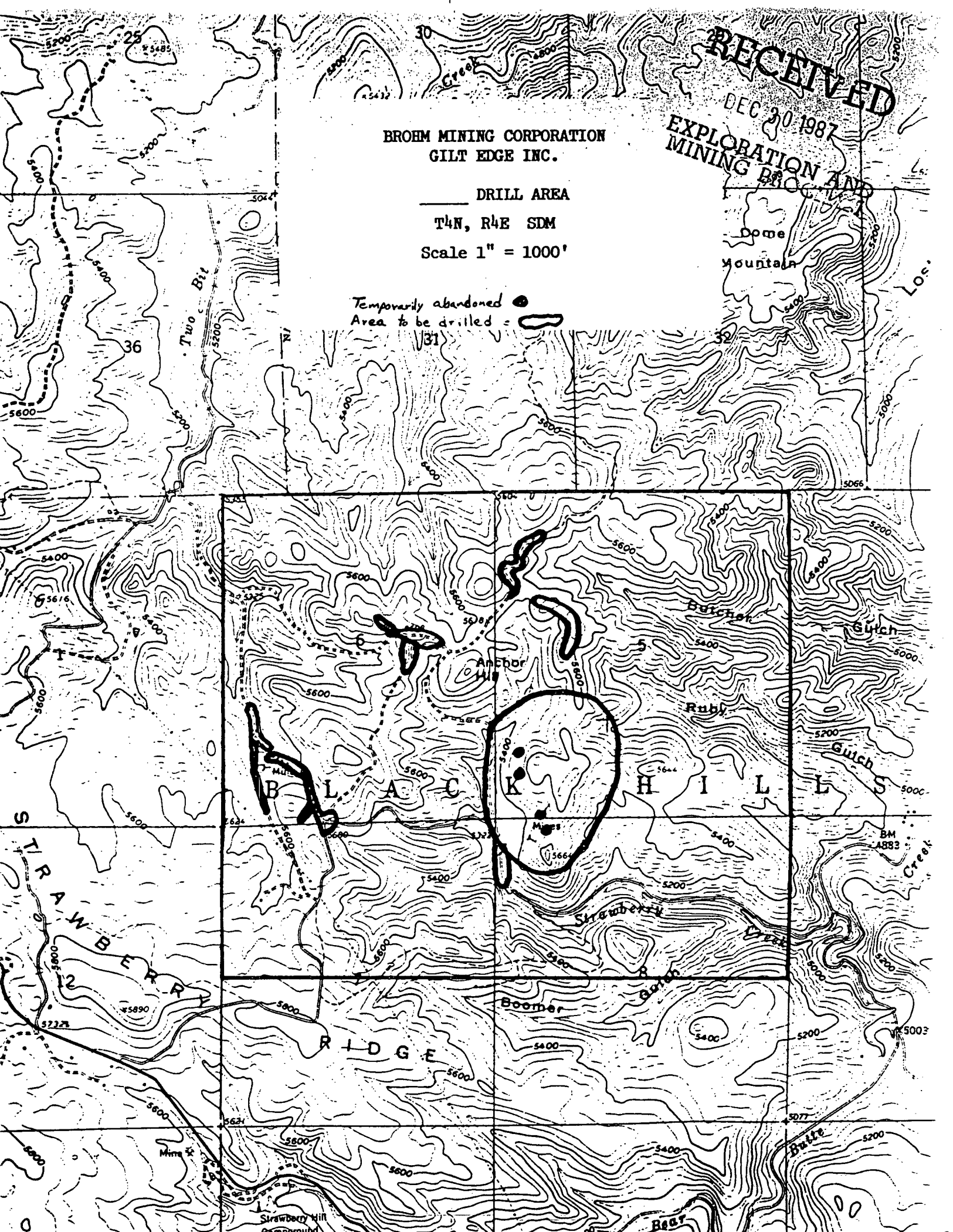
BROHM MINING CORPORATION
GILT EDGE INC.

DRILL AREA

T4N, R4E SDM

Scale 1" = 1000'

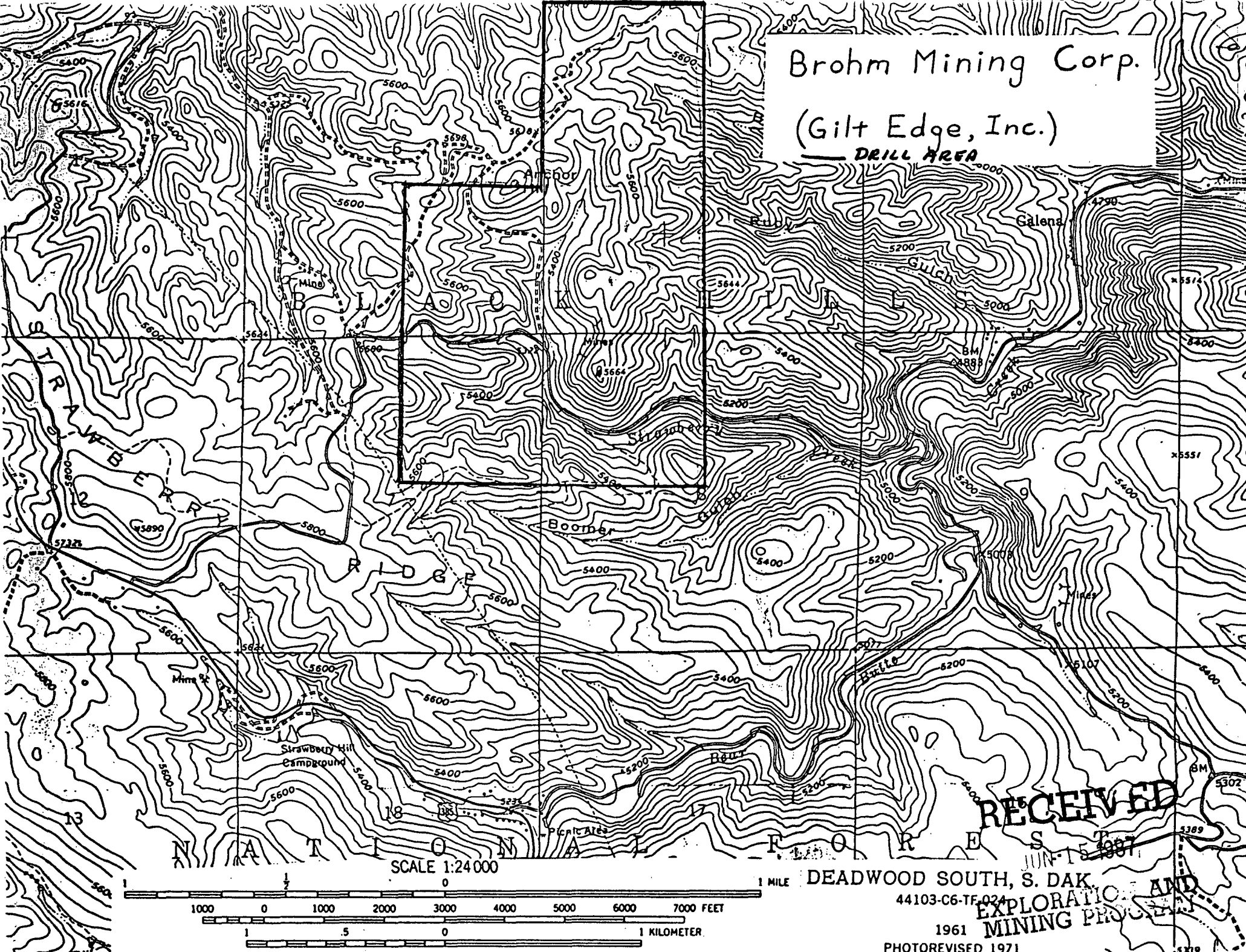
Temporarily abandoned
Area to be drilled =



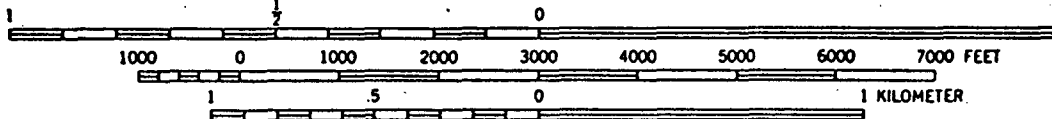
Brohm Mining Corp.

(Gilt Edge, Inc.)

DRILL AREA



SCALE 1:24 000



CONTOUR INTERVAL 40 FEET

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EXPLORATION AND MINING PROJECT

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